Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] 1. A power converter operating separately or as one of a plurality which supplies power to a load utilizing power from a dc source, only one of the plurality of power converters supplying current to the load at any one time, the power converter comprising:

a transformer having a primary winding and a secondary winding, one end of the primary winding terminating in a power terminal and the other end in a reference terminal;

a primary switch having a switched terminal, a reference terminal, and a control terminal, the primary switch being off and the switched terminal being disconnected from the reference terminal when a switch-off voltage is applied to the control terminal, the primary switch being on and the switched terminal being connected to the reference terminal when a switch-on voltage is applied to the control terminal, the switched terminal being connected to the reference terminal of the primary winding, power being applied to the power converter by connections to the power terminal of the primary winding of the transformer and the reference terminal of the primary switch, the secondary winding of the transformer being

the source of output power from the power converter;
a capacitor connected in parallel with either the primary winding or the primary switch;
a controller having a voltage output terminal and a reference terminal, the voltage output terminal being connected to the control terminal of the primary switch and the reference terminal being connected to the reference terminal of the primary switch, the controller alternately supplying the switch-off voltage and the switch-on voltage at the voltage output terminal.

[c2] 2. The power converter of claim 1 wherein the controller includes a first control terminal, the controller utilizing the voltage appearing on the first control terminal to determine when to change the voltage on the voltage output terminal from the switch-off value to the switch-on value, the first control terminal being connected to the switched terminal of the primary switch.

[c3] 3. The power converter of claim 2 wherein the controller changes voltages when the voltage on the switched terminal equals the voltage on the reference terminal after being either higher or lower.

[c4] 4. The power converter of claim 2 wherein the controller changes voltages when the voltage on the switched terminal equals the voltage on the reference terminal after

the voltage on the voltage output terminal has been changed from the switch-on value to the switch-off value.

[c5] 5. The power converter of claim 1 wherein the controller includes a value entry device for use in entering a value into the controller, there being a one-to-one association between a value enterable by means of the value entry device and the primary switch "on-time", the controller causing the primary switch "on-time" to have the value associated with the value entered via the value entry device.

[c6] 6. The power converter of claim 5 wherein the enterable value is the "on-time" repetition rate.

[c7] 7. The power converter of claim 5 wherein the enterable value is a voltage value, the controller including a second control terminal, the controller adjusting the primary switch "on-time" until the voltage appearing on the second control terminal equals the value entered via the value entry device.

[c8] 8. The power converter of claim 7 wherein the output voltage of the power converter is applied to the second control terminal.

[c9] 9. The power converter of claim 1 further comprising a

current blocker connected in series with the secondary winding of the transformer, the current blocker preventing the flow of current through the secondary winding when the primary switch is off.

[c10] 10. The power converter of claim 9 wherein the current blocker is a diode, the diode being reverse-biased when the secondary winding and the diode are connected to a load and the primary switch is off.

[c11] 11. The power converter of claim 9 wherein the current blocker is a switch, the controller controlling the on/off state of the switch by supplying a control voltage to the switch.

[c12] 12. The power converter of claim 1 further comprising an output stage having two input terminals and two output terminals, the series combination of the secondary winding of the transformer and the current blocker being connected to the output stage by means of the two input terminals, the two output terminals providing the means for delivering output power to a load.

[c13] 13. The power converter of claim 12 wherein the output stage comprises a lowpass filter.

[c14] 14. The power converter of claim 13 wherein the lowpass filter comprises a capacitor having two terminals which

serve as both the two input terminals and the two output terminals.

[c15] 15. The power converter of claim 13 wherein the output stage comprises a parallel combination of (1) a diode and (2) an inductor and capacitor in series, the two input terminals connecting to the parallel combination, the two output terminals connecting to the capacitor.

[c16] 16. The power converter of claim 12 wherein the output stage comprises a lowpass filter followed by a dc-ac inverter, the two input terminals providing the input to the lowpass filter, the voltage output from the dc-ac inverter being available at the two output terminals.

[c17] 17. The power converter of claim 16 wherein the lowpass filter comprises a capacitor.

[c18] 18. The power converter of claim 16 wherein the dc-ac inverter comprises four switches arranged in a bridge configuration and a bridge controller which controls the opening and closing of the four switches.

[c19] 19. The power converter of claim 18 wherein the controller regulates the output voltage by varying the duty cycles of the bridge switches.